



*The Story
Your
Ink Bottle
Tells*

The CARTER'S INK COMPANY
BOSTON • MONTREAL • NEW YORK
CHICAGO



Mrs. Cynips Tinctoria — Gall Nuts.



The Laboratories — the Heart of the Business.



FROM the earliest history of man many different means of recording and communication have been employed, from notching sticks and knotting cords to wampum belts and picture rocks. While these crude means were used for centuries before ink came into use by the scribes of the ancients, ink is known to have been used by the Egyptians as early as 2500 B. C. In China, the invention of ink is ascribed to Tien-Tchen, who lived between 2697 B. C. and 2597 B. C. Ink was used, too, by the Greek and Roman emperors, but it was not until comparatively recent times, when education was made compulsory, that the use of ink became universal.

Now it is almost impossible to imagine a world without ink. It has endless uses in the fields of commerce, business, legal practice, government and diplomatic service, and social intercourse.

There are no records existing to tell us how the ancients made their inks. But the evidence of manuscripts in museums of archeology shows that some of the ink used was of a permanent nature, as it is still visible. Other manuscripts, faded and no longer legible, indicate that the ink used was of a very poor and impermanent quality. For many centuries, the cuttle fish furnished the only ink known to writers. Today the manufacture of inks requires complicated processes and many formulas for the different grades and kinds necessary for various purposes. For writing purposes, however, all the most important of these inks may be divided into three general classes: Logwood, Aniline and Iron-Gall inks.

A Forest of Ink

Logwood trees from the forests of Central America and the West Indies furnish the principal ingredient in Logwood Inks. These trees rarely exceed forty feet in height and are ready for felling when about ten years old. After the bark and sap-wood of the trees have been removed, the dark brown colored wood remaining is cut up into chips

and exported to this country. The chips are put into vats with other necessary ingredients and go through a process very much resembling the steeping of tea in order to extract the coloring matter. This coloring can be seen by holding these chips up to the light and noting the purplish black appearance.

The best species of logwood trees are grown in Jamaica, so it is Jamaica chips that go into our Logwood Inks, of which the most important and best known is Carter's Black Letter in ten-cent bottles. Logwood Inks write a purplish black and dry black, and are in general use in schools and for other purposes where absolute permanency is not required. If you want to distinguish this class of inks from the aniline and iron-gall classes, test with dilute muriatic acid and the logwood inks will assume a bright red tint.

Why the Fiji Islanders Use So Much Blue Ink

In the second division the Aniline Inks are grouped. Aniline is a colorless, oily substance derived in a complicated way from coal. When coal is heated to produce illuminating gas, one of the by-products is a tarry material known as coal tar, from which aniline and many other important substances are derived by further distillation. By combining other chemicals with aniline, a large variety of colors may be produced, such as a beautiful blue from aniline and chloride of zinc. While the discoverer of aniline colors was Perkins, an Englishman, the successful manufacture of these aniline dyes, curiously enough, was first begun in France. Since the war the United States has made rapid strides in the art of producing these necessary aniline dyes. Nowadays it is rare to find any product with coloring matter not made from aniline colors. The colors used for tinting paper or cloth, perfumery, fancy soaps, lithographic inks, etc., are mostly anilines. Contrast writing inks such as red, blue, green, violet and brown all have as bases aniline dyes.

Not long ago one of our salesmen whose route takes him entirely around the world was greatly surprised at the large amount of blue ink that was being ordered from one of the Fiji Islands. Wondering if it could be due to a sudden advance of civilization, he decided to stop there and solve the mystery. To his surprise he found that this aniline



General View of one side of Bottling Floor.

ink was used by the natives to dye their straw hats to a striking blue shade.

A River of Ink

Travellers in northern Africa have observed a curiosity of nature—a river of ink. The water is black, yet the streams which feed it are clear.

Chemical analysis and examination revealed the cause of this strange phenomenon. One of the streams which empties its water into the river is strongly impregnated with iron from the soil through which it flows. Another stream carries tannin from a peat swamp. It is the chemical combination of the iron, tannin and oxygen of the air that turns the water black. This chemical reaction forms the basis of the third and most important class of inks, known as iron-gall inks. These are the inks of real permanence and are represented by Carter's Writing Fluid and Carter's Fountain Pen Ink.

Iron-Gall Ink was first made in the twelfth century, but it was not until the re-establishment of learning in the fifteenth century that it came into common use. There hangs on the wall of the private office in our factory at Cambridge, a page from a hand-written book on monkish satin, in ink, with the date 1445 and the writing is as clear black and legible as on the date it was written. The ink used was iron gall, and this shows the permanency of this type.

The most important factor in the making of this ink is gall nuts, certain species of which are found in China, India, Japan and even in some oak and willow trees in America. The gall nut which will produce the greatest amount of tannic acid and unite in the most perfect chemical solution is the one desired for making ink, and this gall nut known as the Aleppo gall is found in far off Syria, Asia Minor. These nuts are hard, spherical bodies, about the size of our acorn.

A peculiar kind of insect, Mrs. *Cynips Tinctoria*, similar to our horsefly, bores into the small twigs of oak trees and then lays eggs in the wound. A little lump is the result, probably due to the same physiological cause that produces a swelling in human beings when poison is transfused into their system from some insect. The egg grows with the gall and is soon converted into a larva which feeds on the surrounding vegetable matter and forms a cavity in the centre of the lump. Even-

It is well always to use one brand of ink in your fountain pen, instead of at one time using blue black, and then changing to blue or red or black in the same pen. These inks are of a different nature and it is never possible thoroughly to wash a fountain pen clean, especially in the self-filling pen which has a rubber sack.

A good fountain pen, used with proper care and filled with Carter's Fountain Pen Ink, will give satisfactory results under all conditions. Many people will pay a high price for a fountain pen and fill it with a cheap, unknown brand of ink.

Carter's Inks and Adhesives are made on standard formulas in a similar way that medicinal products are made and with similar care and protection to the purchaser who buys them for his particular use.

Value of Permanent Ink

Attempts to cut corners on expense by the use of the so-called ink tablets, or similar devices, are open to interesting experiments in respect to permanency. Anything consisting merely of aniline colors can be washed out with water, or will fade in the sun, while the usual "acid proof" ink can be removed with soap and water. The numerous vendors of this class of ink either do not know, or neglect to state, that their wares, though impervious to acids, yield readily to alkalis. In contrast with these, however, it is really remarkable to know how lasting an impression a first-class Iron-Gall Ink such as Carter's Writing Fluid can make. In the great Baltimore fire of 1904, J. S. Macdonald Co., Jewelers, who used Carter's Writing Fluid, were burned out and their books lay in the water for a week. On recovery, the writings were found perfectly legible. Many similar cases are on record where sudden floods and other catastrophes would have meant ruin to firms' books and records, had not they been safeguarded with this permanent ink. In such extreme cases a permanent ink is of paramount importance.

An Ink for Every Possible Use

The modern ink manufacturer has kept pace with other manufacturers in catering to the constant demand of the public for new tools or "something different." Under the general heading of specialties numerous interesting inks are produced such as Box Marking, Drawing,

Hektograph, Metal and Rubber Stamping, and Show Card Colors. Also there are Indelible Inks not requiring heat to set writings, a liquid Ink Eraser that makes ink spots vanish from paper, clothing, etc., while for fancy purposes there are Gold and White Inks. In addition to sixty-odd inks for use with pen, there are enough adhesives and special inks for steam gauges, marking shoe linings or electric light bulbs, etc., to bring the total number of separate formulas up to nearly two hundred, and the important line of typewriter ribbons and carbon papers requires nearly two hundred more.

While it is usually possible to satisfy even unusual needs with inks now manufactured, whenever there is a sufficient call for something out of the ordinary to meet an unusual situation, the resources of the laboratory are at the service of the customer to work out the problem.

CICO—Always Ready for Use

The demand for a liquid paste which would be always ready for instant use has been of long standing and finally met with complete satisfaction by Carter's Cico. This paste is remarkably economical as well as convenient, because it sticks best when spread thin—there is no waste! It is unusual in that it will do everything a mucilage will do, everything a hard paste will do, but has none of the disadvantages of either. It is put up in the most convenient jar on the market, the most beautiful also—made of opal glass—with an adjustable brush that keeps the fingers clean.

Ordinary photographic paste, of the stiff, white variety, is also furnished by Carter's. It comes in the convenient double-well jar—one well for water and one for the brush—and is known as Carter's Photolibrary Paste.

What Makes Mucilage Stick?

So closely allied with ink that they are generally made by any one who produces it, are the useful products Paste, Mucilage and other Adhesives. Although most people have used one or the other, they seldom know the names of the countries from which the raw materials are obtained for their manufacture. The product from which Mucilage is made has been known, however, for centuries. As far back as 2000 B. C. gum was used by the Egyptians in the manufacture of colors for

tually the lava becomes a fly and escapes by eating its way out, if the gall remains long enough unpicked. In such cases, a small round hole in the side of the nut shows the path of escape. The best nuts for ink making are those that are picked when fully ripe but just before the escape of the insect, as these contain the largest amount of tannin. Occasionally on breaking open such a nut, the fully developed fly will be found embalmed inside, but more usually the insect has disintegrated to a yellow dust.

It may be of interest to know that the Somali women of Africa use a large supply of these nuts in dyeing their hair and eyebrows.

As the name implies, iron-gall inks are based on a liquid in which an iron salt is combined with tannin extracted from gall nuts. The iron salt is called copperas and comes in the form of beautiful green crystals. These are secured of course in our own country. While there are other ingredients added, these two are the most important in the make-up of this ink.

This liquid is practically colorless until acted upon by the oxygen in the air; that is, a pen dipped into such a fluid would make no visible mark on the paper. Most people, we find, like to see what they are writing as they write and so a blue aniline color is added. After the ink is exposed to the air, the iron-gall compound develops to an intensely black and permanent color, entirely superseding the original blue which ultimately fades away. This change in color is what causes it to be referred to commonly as a blue-black ink. The black remains clear and legible as long as the paper on which it is written lasts.

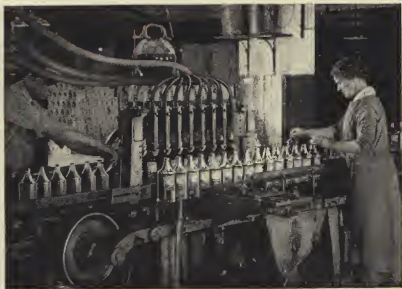
About Fountain Pen Inks

The fountain pen is a necessity today in all forms of correspondence. In schools, in the home, and in business it fills an important place. People are particular about the kind of pen they use, but often forget the important matter of using the best kind of writing ink.

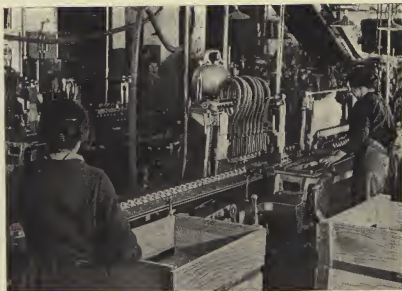
Carter's Fountain Pen ink is especially prepared for fountain pens; that is, the materials used are the best obtainable and the ink is made with the utmost care as regards correct proportion of chemicals and color, and freedom from sediment which will clog the feed in the fountain pen.



Main Factory and Executive Offices, Cambridge, near Boston.



Quart Bottles being Filled after Labeling.



Part of the Machine that Automatically Fills, Corks and Labels small bottles.

painting. The types used in this market are Ghatti which is found in India, Gum Arabic in the Anglo-Egyptian-Soudan region and Senegal in the French-African colony of Senegal. Gum Arabic, which contains the most desirable qualities, is a little lighter in color than our native Spruce Gum and exudes from the Acacia tree in the same manner as Spruce Gum from the Spruce. The gum is gathered by men, sorted and picked over by women, packed in bales and transported in a picturesque manner on the backs of camels to the Nile ports. Here it is loaded on vessels of shallow draft by natives who wade out and carry the bales on their shoulders. On arriving at the factory, the gum is dissolved and filtered to remove the little impurities such as pieces of bark and dirt. It is then re-filtered and re-stirred with other constituents and finally stored in vats from six to eight weeks. This allows any insoluble matter to settle. It is then ready for bottling and packing. Although it is necessary to fill the bottles singly, the speed with which this is done is a source of constant surprise to spectators.

Saving the Government \$20,000,000 Annually

A wizard of figures calculated, during the height of war-time activity in Washington, that if it were not for carbon paper, the Government would have had to spend annually \$20,000,000 in wages. This calculation is figured on the assumption that every copy of every letter would have to be typed separately if it were not for carbon paper. That is, a typist making 5 carbon copies is doing the work of 5 extra typists.

Because of this tremendous saving, the use of carbon paper in offices has become universal, and the manufacture of it is an important branch of this ink industry.

The best carbon sheet is the sheet which has the carbon deposit most smoothly and uniformly applied, and with the best adhesion to the tissue. Black carbon paper is coated with a real carbon deposit and copies made from it are absolutely permanent.

There is a carbon sheet of just the right thickness and color for every use and every make of typewriter. The best results are obtained by suiting the carbon paper to the use. In selecting carbon paper the expert advice of a stationery supply house is important.



General View of Adhesive Department, Bottling Floor.

Typewriter Ribbons

An inked ribbon as a means of retaining the first impression of the typewriter naturally came into use with the invention of the typewriter itself in 1876. It was not until the nineties, however, that ribbons began to have something of their present excellence.

The cloth used in making a ribbon must be of sufficient closeness of weave and softness of texture to print a sharp, clear outline of the type without showing the separate threads. The best cloth now used (a form of nainsook) has a thread count of from 260 to 312. That is, if the horizontal threads in a square inch are counted and the vertical ones added to them, the above count will be obtained. Count the threads in your coat sleeve and compare the count with the above figures. The fabric must be of an absorbency which will hold the ink and of a toughness which will withstand the cutting blows of the type.

A Trip Through Inkland

It is interesting as well as instructive to walk through the main factory at Boston, which is generally a surprise on account of its architectural attractiveness and well-lighted neatness within. While the boxes are being made in one part of the basement, the bottles are brought from the bottle storehouse to the automatic washing machines on the bottling floor where the boxes, taken by automatic conveyors, meet them to await the ink.

On the top floor the pure nut-gall solution is mixed with the iron salt and other ingredients in great tanks holding 3,600 gallons each. This nut-gall solution is the very purest obtainable, a super-U. S. P. Standard, so to speak, actually more refined than the grade of Tannin used in medicine. Of course, the purer the Tannin (Gall Solution) the better the ink. From here gravity takes the product to the big storage vats on the third floor, which have a total capacity of about 60,000 gallons. One of these vats alone contains enough ink to give each man in the regular army of the United States two desk bottles of Carter's Writing Fluid.

After the ink has remained here long enough to settle out all sediment, the finished product is transferred by gravity to the automatic

filling machines. It is also really fascinating to watch the labelling machines reach up with their mechanical hands, take down and gum the labels and fasten them to the bottles, in a marvellously smooth and secure manner. One of these machines alone labels 100 gross of bottles in a day, and the whole battery about 100,000 bottles.

After the ink bottles are filled, corked and labelled they are ready to be packed in boxes. The final act on this floor is nailing the cover on the boxes with automatic nailing machines. Placing the cover on the box by hand, a man slides it under the nailing machine, presses a lever, and the cover is nailed down securely with two blows. It is then slid on to another conveyor which lets the box down to the stock and shipping floor below. By means of trucks these boxes are then loaded on the freight cars which are left on a siding directly in front of the shipping platform.

From this point our inks go to all quarters of the globe from Spain to China, and from Iceland to the Fiji Islands. Occasionally a complaint drifts in that "something is the matter with this bottle of ink," but ninety-nine times out of a hundred it simply means that something has happened to that particular bottle since it left our factory. It may have been frozen in shipping, piled against steam pipes or simply lost its color from extreme old age while in the dealer's stock. The best ink is no more proof against injurious external conditions than iron is against rust or furniture against scratching. So long as we control conditions every conceivable safeguard is used. Each raw material is rigidly tested to make sure that it conforms to its standard. Every step of the manufacturing process is watched by trained men. And finally not a drop of ink is piped down to the bottling floor from any vat until the contents of that vat have been tested as rigidly as the raw materials by our chemists.

That is why we are always ready to stand back of every Carter Ink product to the limit. It also shows why Carter's are universally known as "quality goods." The elimination of every suggestion of guesswork, and the substitution of methods such as one would expect in the preparation of intricate scientific compounds give that perfect result which has placed our goods foremost and made us the largest manufacturers in our lines in the world.

FLEXIBLE PEN POINT



ROCKER SPRING CLIP



The CARTER PEN

The Perfect Writing Instrument
easy to write - easy to carry

Do you write with your pen or your fingers? Yielding at once to the slightest pressure of the fingers, its *flexible* osmiridium point distinguishes The Carter Pen as an *easy writer* — the friendly pen.

Osmiridium is the best wearing pen point material known, as well as the best writing.

The Carter Rocker Spring Clip is built into the cap. A slight pressure on the spring releases the clip and allows The Carter Pen to be instantly removed and replaced without *jamming* or *pulling* the pocket.

See the new pen — made in a beautiful mottled blue of unbreakable Coralite.

The Carter's Ink Co.

For blue-black inks use Carter's Fountain Pen Ink or Carter's Roto; for blue ink use Carter's Blu-Rex.



*a good writer
— that's the point*

